

HCFE Data Brief

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VALIDATING MDS DATA FROM VA NURSING HOME CARE UNITS: COMPARING VA AND COMMUNITY QUALITY MEASURES

Austin Frakt, Ph.D.
Man Wang, M.S.
Steven Pizer, Ph.D.

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Health Care Financing & Economics

VA Boston Health Care System Research & Development
150 South Huntington Avenue (Mail Stop 152H), Boston, MA 02130 • Phone: (617) 232-9500 Ext. 6058 • <http://www.hcfe.org>

Steering Committee Members

Chair: Dan Berlowitz, M.D., Director, CHQOER, Edith Nourse Rogers Memorial Veterans Hospital
Joan Buchanan, Ph.D., Lecturer in Health Policy, Harvard Medical School
Christa Hojlo, Ph.D., Chief, Nursing Home Care and Subacute Care, VHA
Wei Yu, Ph.D., Health Economist, HERC, VA Palo Alto Healthcare System

Project Team

Steven Pizer, Ph.D., Principal Investigator
Austin Frakt, Ph.D., Co-investigator
Elaine Czarnowski, R.N., Co-investigator
Man Wang, M.S., Statistical Programmer
Lynn Wolfsfeld, M.P.P., Project Manager/Analyst

Project Officer

Christine Elnitsky, Ph.D., VA HSR&D

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1.0 Introduction

During fiscal year 2001, VA fully implemented the collection of health and functional status data for VA nursing home patients using the Minimum Data Set (MDS) Version 2.0 instrument developed by the Centers for Medicare and Medicaid Services (CMS).¹ Prior to that time, VA used a VA-developed instrument - the Patient Assessment Instrument - to collect a smaller set of somewhat similar data stored in the Patient Assessment File (PAF). The MDS instrument was initially designed for use in community nursing homes; the first version was fielded in 1991.

Nursing home patient (or resident) assessment data provide the foundation for quality monitoring, case mix adjustment, and outcomes research in both community and VA nursing facilities. The adoption of the MDS 2.0 as the patient assessment instrument in VA holds the promise of more detailed data for application to VA research questions as well as data that, for the first time, could be easily comparable to resident assessment data collected in community nursing facilities.

Both in its original development and in its subsequent revision, the MDS has undergone extensive validation [Hawes 1997]. Some validation studies use the concept of inter-rater reliability, where MDS assessments conducted by different nurses are compared [Morris 1990, Morris 1997, Hawes 1995]. Other studies validate MDS items by comparing individual items or summary scores derived from several of them to data or summary scores available from other sources or assessments [Morris 1994, Hartmaier 1994, Frederikson 1996, Gambassi 1998, Snowden 1999]. Validation of MDS cognition assessment has been one domain of considerable research, with several studies comparing the MDS' cognitive performance scale with other summary measures of cognition [Morris 1994, Frederikson 1996, Snowden 1999, Gruber-Baldini 2000]. Another study [Fries 2001] developed and validated an MDS pain scale, which consists of MDS items found to be most predictive of the Visual Analogue Scale (VAS), a self-reported measure of pain [Herr 1993]. Few studies address the validity of MDS assessments conducted in a non-research setting. Thus, less is known about the validity of MDS assessments as they are completed by facility nurses under normal operating conditions [Stineman 2000].

This research project (Validating MDS Data From VA Nursing Home Care Units - SDR 03-211-2) is the first attempt to validate the MDS for the VA patient population. The goals of this project are to:

1. Evaluate the internal consistency of VA MDS data, checking different items on the same assessment and checking longitudinally across assessments for the same patient.
2. Evaluate the comparability of VA MDS data relative to PAF data from prior years and other VA administrative data.
3. Compare basic MDS-based quality indicators constructed from VA MDS data to the same measures constructed from MDS data collected from community nursing home facilities.

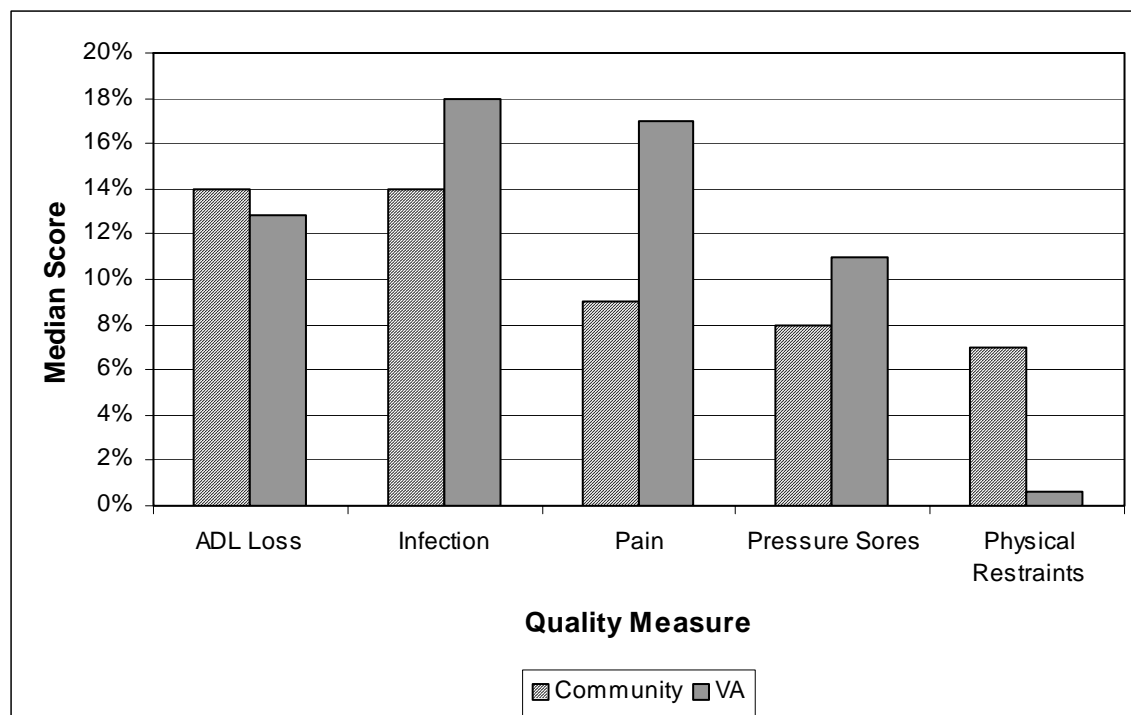
¹ See CMS website <http://www.cms.hhs.gov/quality/mds20/default.asp> for MDS 2.0 manuals and forms.

This Data Brief is the third of three written to address the goals listed above. Specifically, this Data Brief compares quality measures from community nursing facilities with those of VA nursing facilities. The quality measures we compare are the five chronic quality measures used for national reporting by the Centers for Medicare & Medicaid Services (CMS) (see Abt Associates 2003, 2004). These five quality measures are: (1) percent of residents with loss of ability in basic daily tasks, (2) percent of residents with infections, (3) a risk-adjusted measure of pain prevalence, (4) percent of residents with pressure sores, and (5) percent of residents in physical restraints.

Summary of Results. We find that median facility-level scores for several of these quality measures are comparable between the community and the VA—ADL loss, infection, and pressure sores. For two quality measures—pain and physical restraints—the differences between community and VA facilities are large (Figure 1.1).

The VA performs better than community facilities on two quality measures—ADL loss and physical restraints—and worse on the other three—infection, pain, and pressure sores. One likely major contributing factor toward the differences is the different mix of residents in the two settings. For example, VA nursing facility residents are mostly men and community nursing facility residents are mostly women. Because we do not have resident-level data from the community homes, we could not risk-adjust most of the measures. Differences in quality measures include an unknown contribution from differences in resident characteristics.

Figure 1.1: Median Quality Measure Scores



Note: Medians computed over facilities. All but the pain quality measure can be interpreted as the percent of residents with the indicated attribute.

The remainder of this Data Brief provides additional detail on these results and is organized as follows. In Section 2.0 we describe the data used for the analyses. In Section 3.0 we describe the quality measures. Results are provided in Section 4.0 and a concluding discussion is found in Section 5.0.

2.0 Data

The results presented in this Data Brief are based on data from two sources: CMS community nursing home quality measure data and VA MDS data, each of which is described in the following subsections.

2.1 CMS Community Nursing Home Quality Measure Data

CMS community nursing home quality measure data for the third quarter of calendar year 2002 (July-September, 2002) were downloaded from the CMS website. These facility-level data include five MDS-based chronic care quality measures that were used for national reporting in the fourth quarter of 2002 for 16,559 facilities across the US. Also included are variables that code for facility characteristics (e.g., non-profit status, hospital based, number of beds). Table 2.1 below describes these data.

Table 2.1: Characteristics of CMS Community Nursing Homes (N = 16,559 facilities)	
Characteristic	Value
Percent hospital based	11%
Percent non-profit	28%
Mean number of beds	103
Source: CMS community nursing home quality measure data, July-September, 2002.	

The project team attempted to obtain similar data for other periods in 2003 or 2004 but efforts were unsuccessful. For most of this project, these data were not posted on CMS' website and inquiries made to CMS and to ResDAC were unfruitful until early September, too late for this project.

2.2 VA MDS Data

VA MDS data from the July-September, 2002 period were obtained as part of a download from the Austin Automation Center. MDS assessments were grouped according to which of the 131 facilities (sub-stations) provided care to the resident. The five MDS-based quality measures available in the CMS dataset were computed according to the definitions provided in Abt Associates (2003). According to the Abt Associates (2003) definitions, not every MDS record qualifies for inclusion in the computation of each quality measure (for example, due to missing data). In total, between 8,267 and 8,974 MDS records qualified for the period of study, depending on the measure. Details are provided in Section 3.1.

3.0 Methods

There were two main steps in preparing the community and VA data for analysis. The first step was to apply the CMS quality measure definitions to the VA MDS data. This is described

further in Section 3.1. The second step was to consider more comparable subsets of CMS and VA data according to various facility characteristics. This is described further in Section 3.2.

3.1 Definitions of Quality Measures

The precise definitions of the five quality measures considered in this Data Brief are lengthy and technical. In this section we provide a summary based on the descriptions in Abt Associates (2003). CMS' full definitions are found in the Appendix.

3.1.1 Loss in Ability to Perform Basic Daily Tasks

This quality measure is computed by comparing the self-performance scores of the late-loss ADL MDS items (bed mobility, transferring, eating, toilet use) from one assessment with those on the following assessment. If self-performance scores degrade by two or more points on at least one item or by more than one point on two or more items, then the resident is considered to have worsening late-loss ADL performance.² The percent of such residents by facility constitutes the facility-level quality measure for loss in ability in basic daily tasks.

3.1.2 Infections

This quality measure is computed by counting the number of residents with specific infections or health conditions as coded on the MDS assessment. The specific infections or health conditions are: pneumonia, respiratory infection, septicemia, urinary tract infection, viral hepatitis, wound infection, fever, and recurrent lung aspiration. The percent of residents with any of these conditions constitutes a facility's quality measure for infections.

3.1.3 Pain

This indicator is a risk-adjusted measure of the proportion of residents in a facility with pain at least daily or horrible/excruciating pain at any frequency, relative to the national average. Risk adjustment is based on an indicator of independence in daily decision-making on the prior assessment. Risk adjustment details are found in Abt Associates (2003, 2004). Note that because of the risk adjustment method used, this measure cannot be interpreted as a percentage of residents in pain.

3.1.4 Pressure Sores

This quality measure is computed by counting the number of residents with pressure ulcers (stage 1-4), as coded on the MDS assessment. The percent of such residents by facility constitutes the facility-level quality measure for pressure sores.

3.1.5 Physical Restraints

This quality measure is computed by counting the number of residents who were physically restrained daily, as indicated on the MDS assessment. The percent of such residents by facility constitutes the facility-level quality measure for physical restraints.

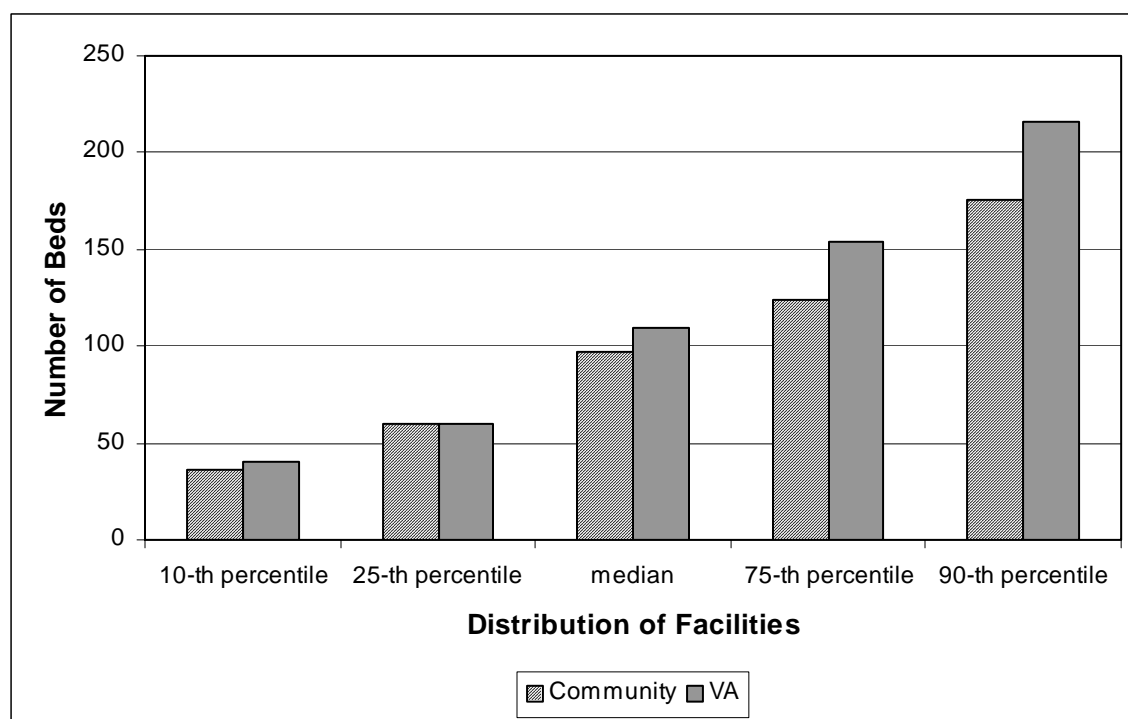
3.2 Comparability of Community and VA Nursing Homes

Community and VA nursing homes differ in many respects. The community dataset available to us for this project contained only a few facility characteristics: number of beds, for-profit status,

² Each ADL item is scored on a four-point scale from least dependent to most dependent.

and hospital-based. We compared VA facility size (number of beds) to community facility size and found that while no VA nursing facility is larger than 380 beds, a small proportion of community homes are larger (a few with over 1,000 beds). Because size may matter (e.g., larger facilities may treat more long-stay residents), we made the two samples of homes more comparable by restricting the community sample to homes with no more than 380 beds (dropping 96 community facilities, less than one percent of the total community sample). Also, we dropped all homes (VA or community) with zero beds. This removed three VA facilities (2 percent of the VA sample) and one community facility (less than 0.1 percent of the community sample). Figure 3.1 shows the distribution of the number of beds in community and VA facilities after these adjustments to the sample were made. The two distributions are similar below the median and the VA has larger facilities above the median.

Figure 3.1: Distribution of Number of Beds: Community vs. VA



We compared all remaining community and VA facilities, after the aforementioned adjustments were made to the sample. In our analysis, we also compared VA facilities to subsets of community facilities that we hypothesized would be more similar to VA facilities: those that are hospital-based and those that are not-for-profit. However, the results were similar to those using the entire sample so we do not show them in this Data Brief.

4.0 Results

This section presents quality measure comparisons between community and VA nursing facilities in two ways: comparisons of the distributions of quality measure scores across all VA

and community nursing facilities and comparisons of median scores by census region. Our main results are

- VA nursing facilities perform better on the ADL and restraints quality measures (Sections 4.1 and 4.5).
- Community nursing facilities perform better on the infections, pain, and pressure sore quality measures (see Sections 4.2, 4.3, and 4.4).
- Differences between community and VA results are statistically significant for all quality measures.
- Measures are not risk adjusted; quality measure differences reflect differences in case mix and not necessarily differences in quality.

In each of the following five subsections we compare the VA and community distributions of a quality measure.

4.1 *Loss in Ability to Perform Basic Daily Tasks*

Figure 4.1 shows that the VA and community facility distributions of the percent of residents with loss of ability in basic daily tasks are very close, with the community facility percentile values slightly larger than the VA values. For instance, the median community value is about 14 percent while the median VA value is about 13 percent.

Figure 4.1: Facility Distribution of Percent of Residents with Increased Loss in Ability of Basic Daily Tasks: Community vs. VA

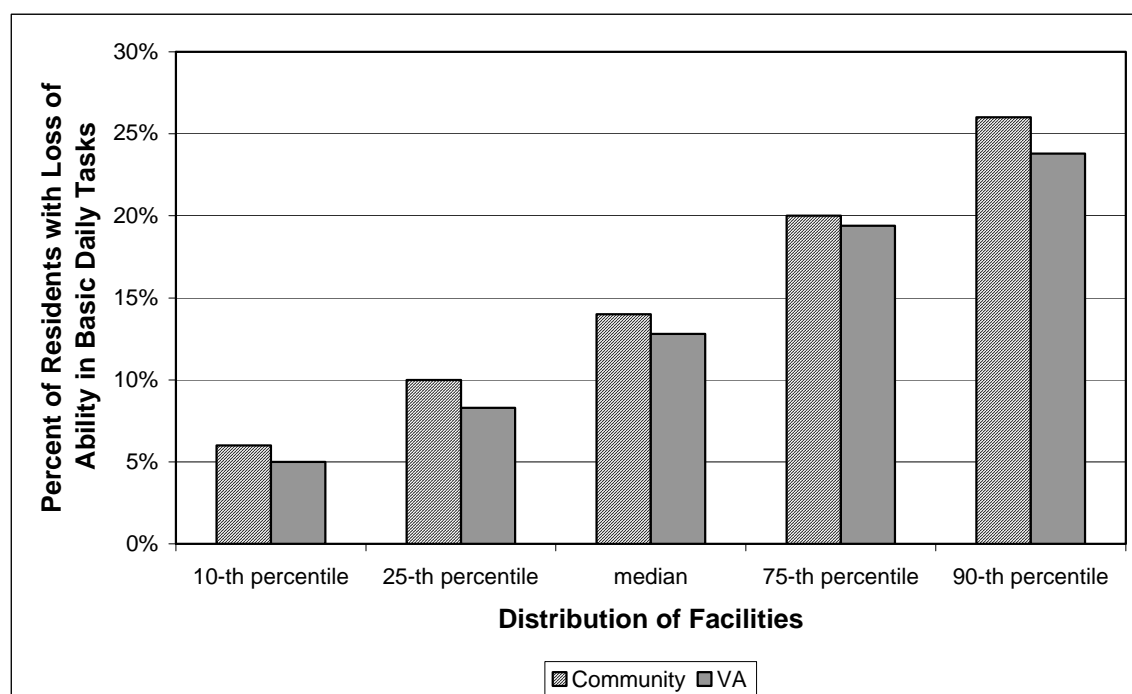
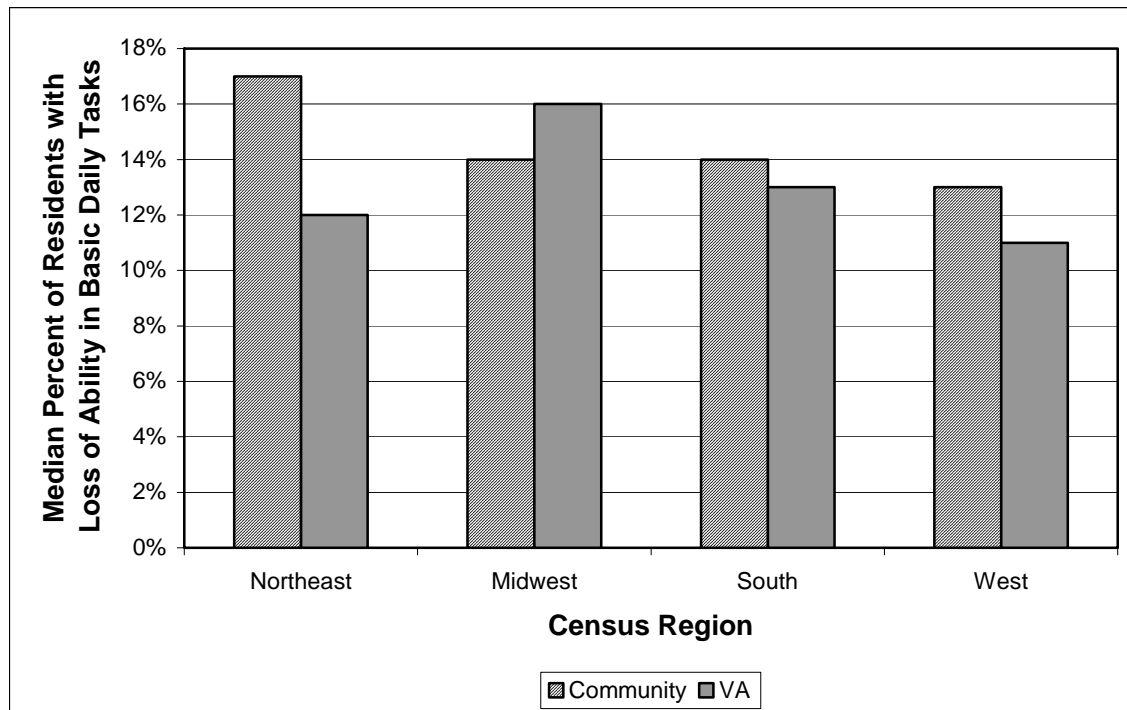


Figure 4.2 shows the median value of the percent of residents with loss of ability in basic daily tasks by census region. In all but the midwest region the median value for community facilities is larger than that of VA facilities. All differences in medians are statistically significant due to the large number of observations that contribute to the median calculation.

Figure 4.2: Median Percent of Residents with Loss of Ability in Basic Daily Tasks by Census Region



Note: Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania; Midwest includes Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; South includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas; West includes Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington.

4.2 Infections

Figure 4.3 shows the VA and community facility distributions of the percent of residents with infections, with the community facility percentile values below the VA values. For instance, the median community value is about 14 percent while the median VA value is about 18 percent. This ordering is consistent across census regions, as shown in Figure 4.4. All differences in medians by census region are statistically significant due to the large number of observations that contribute to the median calculation.

Figure 4.3: Facility Distribution of Percent of Residents with Infections: Community vs. VA

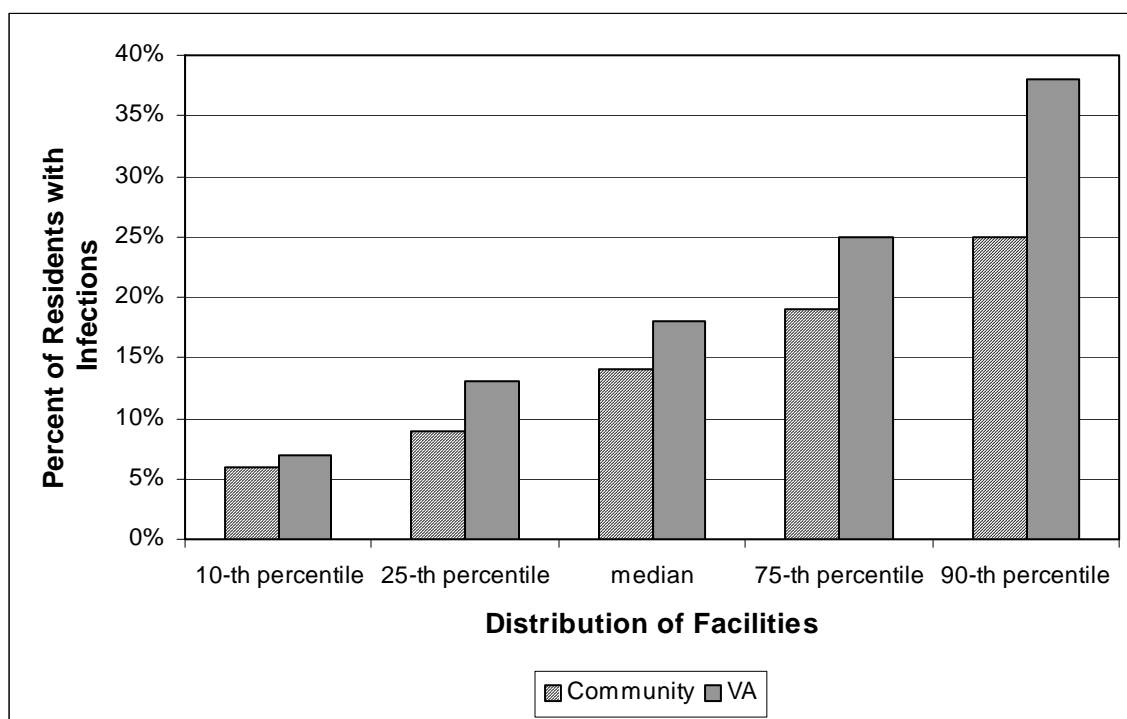
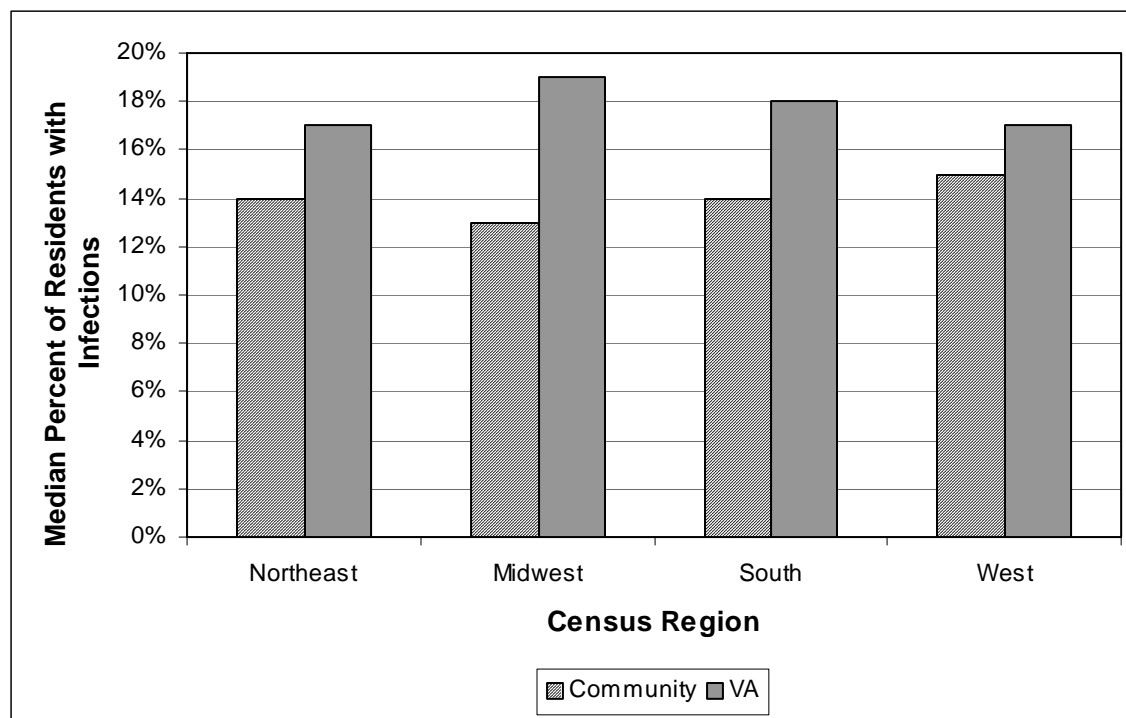


Figure 4.4: Median Percent of Residents with Infections by Census Region



Note: Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania; Midwest includes Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; South includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas; West includes Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington.

4.3 Pain

Figure 4.5 shows the VA and community facility distributions of the risk-adjusted pain measure, with the community facility percentile values below the VA values. For instance, the median community value is about 0.08 while the median VA value is about 0.17. This ordering is consistent across census regions, as shown in Figure 4.6. All differences in medians by census region are statistically significant due to the large number of observations that contribute to the median calculation. Note that because of the risk adjustment method used, this measure cannot be interpreted as a percentage of residents in pain.

The higher recorded prevalence of pain in VA facilities may reflect greater emphasis on pain measurement and management in VA. In contrast to quality measures that rely on directly observable conditions like infections or ADL status, pain levels must be measured by asking the resident to rate their pain. Consequently, the recorded prevalence of pain is very sensitive to how and how often residents are asked.

Figure 4.5: Facility Distribution of Risk-Adjusted Pain Measure: Community vs. VA

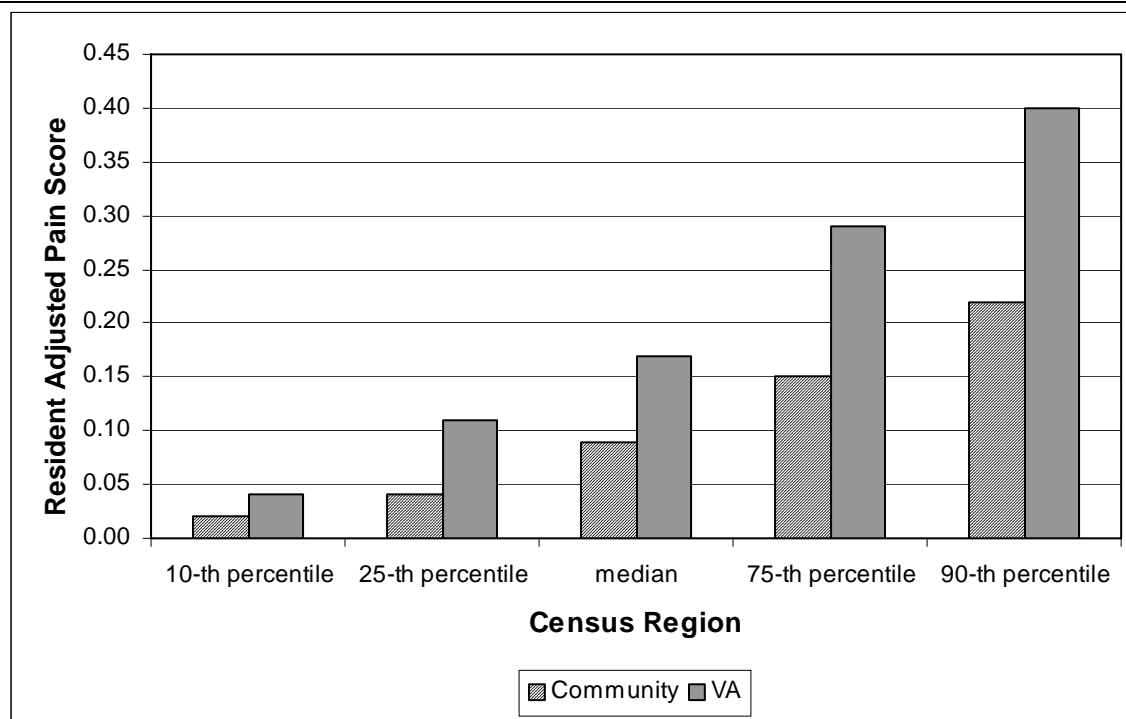
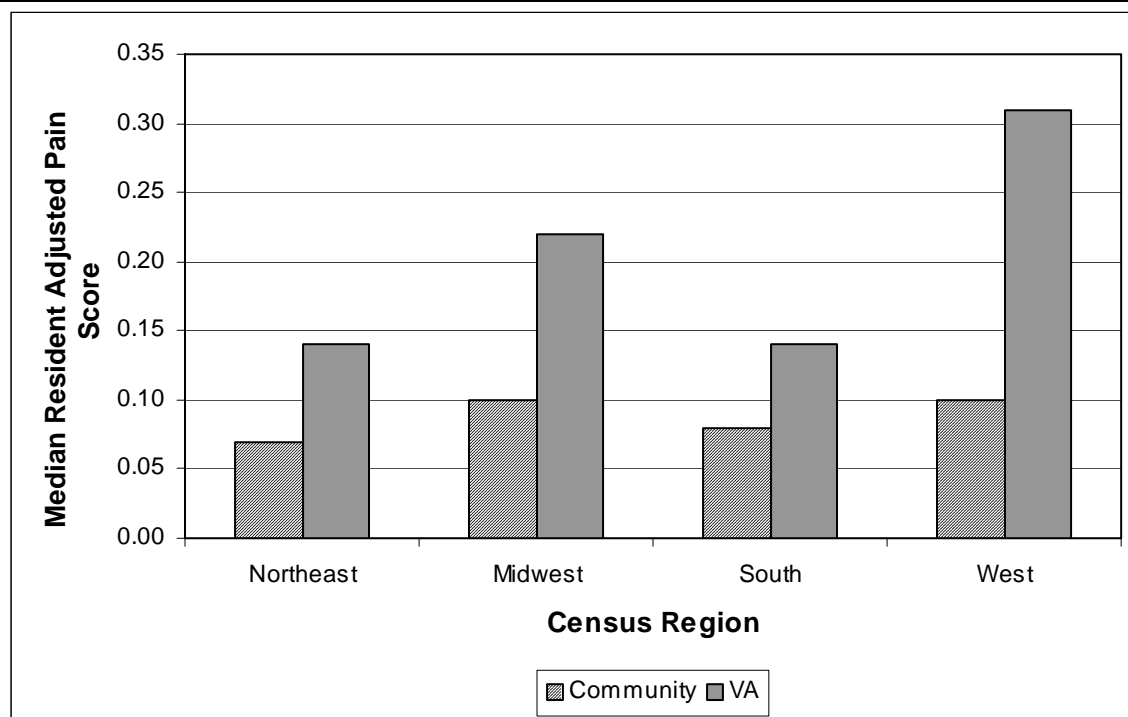


Figure 4.6: Median Risk-Adjusted Pain Measure by Census Region

Note: Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania; Midwest includes Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; South includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas; West includes Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington.

4.4 Pressure Sores

Figure 4.7 shows the VA and community facility distributions of the percent of residents with pressure sores, with the community facility percentile values below the VA values. For instance, the median community value is about 8 percent while the median VA value is about 11 percent. This ordering is consistent across census region, as shown in Figure 4.8. All differences in medians by census region are statistically significant due to the large number of observations that contribute to the median calculation.

Figure 4.7: Facility Distribution of Percent of Residents with Pressure Sores: Community vs. VA

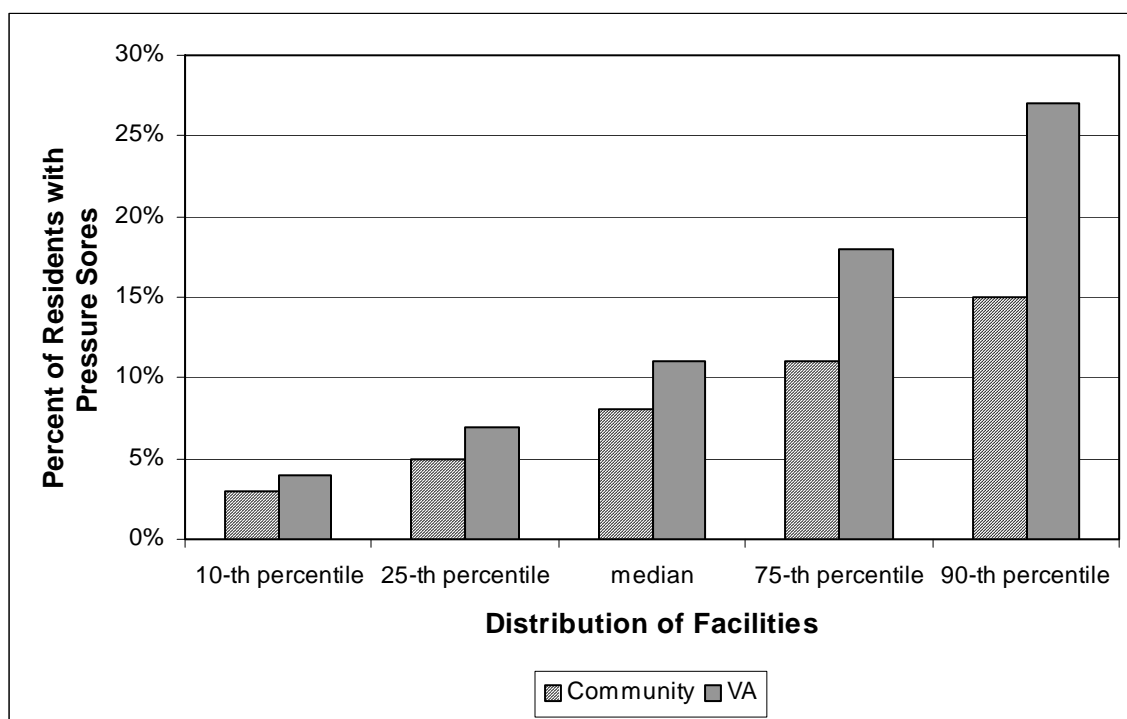
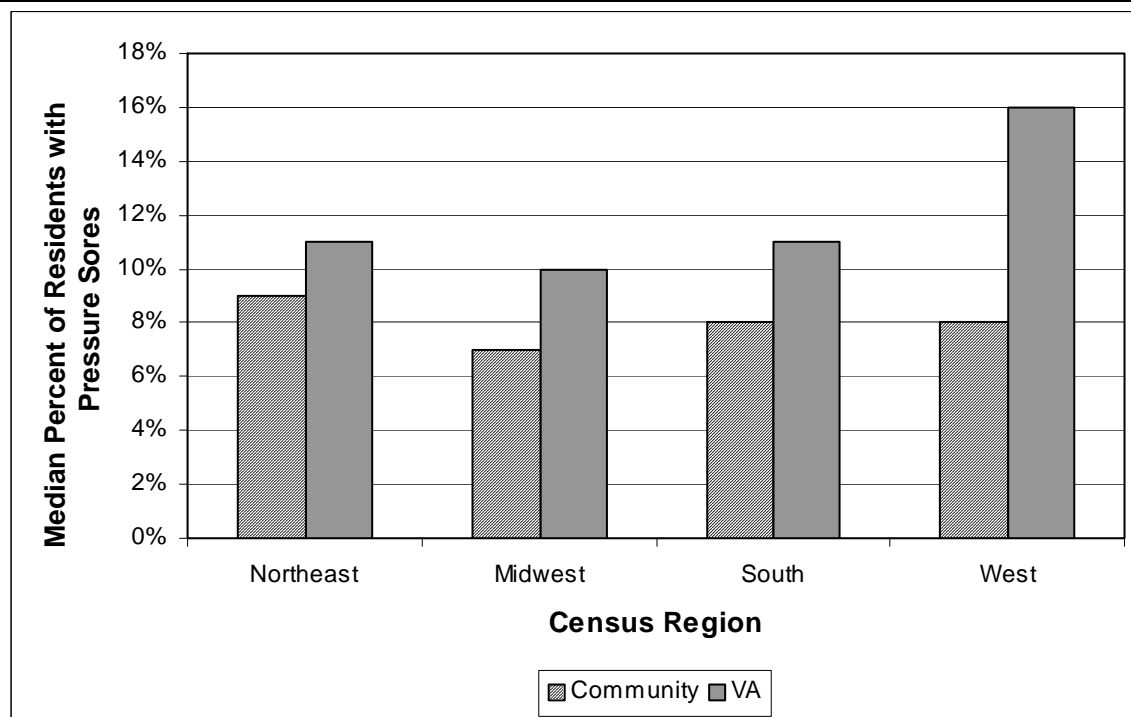


Figure 4.8: Median Percent of Residents with Pressure Sores by Census Region



Note: Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania; Midwest includes Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; South includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas; West includes Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington.

4.5 Physical Restraints

Figure 4.9 shows the VA and community facility distributions of the percent of residents in physical restraints, with the community facility percentile values much larger than the VA values. For instance, the median community value is about 7 percent while the median VA value is about 1 percent. This ordering is consistent across census region, as shown in Figure 4.10. All differences in medians by census region are statistically significant due to the large number of observations that contribute to the median calculation.

The lower recorded VA prevalence of restraint use may be partly a function of differences in how the term “restraint” is understood by VA and community assessment nurses. For example, veil beds are known to be used in VA facilities but are typically not coded as restraints.

Figure 4.9: Facility Distribution of Percent of Residents in Physical Restraints: Community vs. VA

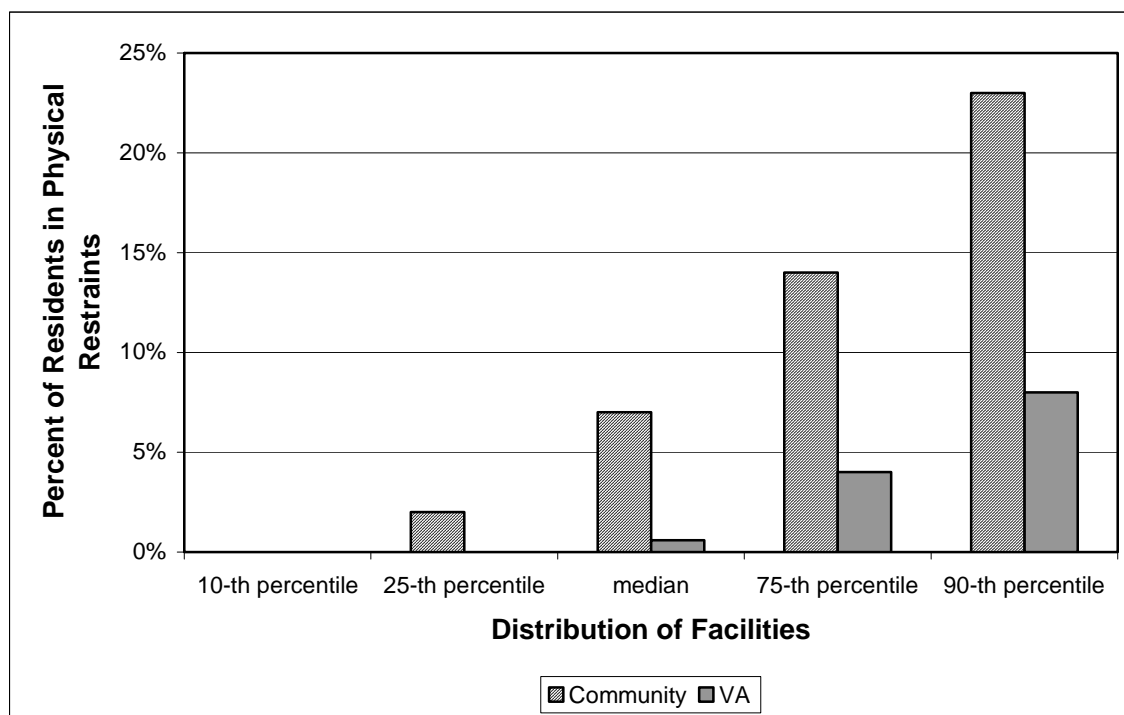
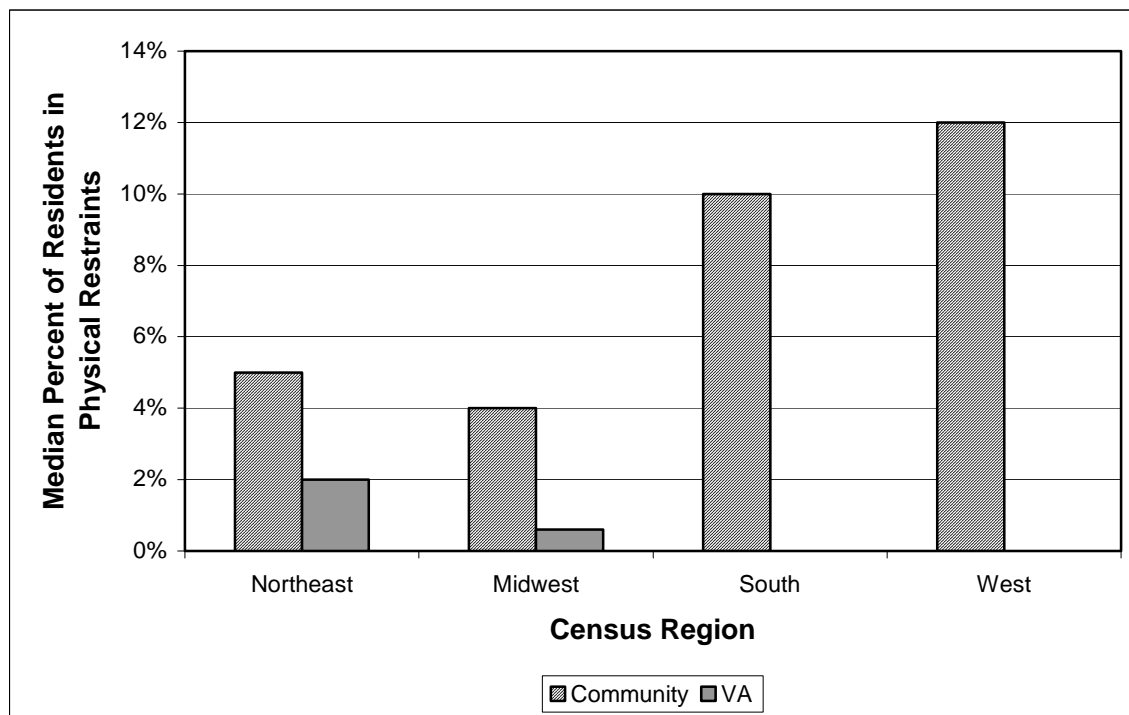


Figure 4.10: Median Percent of Residents in Physical Restraints by Census Region

Note: Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania; Midwest includes Indiana, Illinois, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota; South includes Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas; West includes Arizona, Colorado, Idaho, New Mexico, Montana, Utah, Nevada, Wyoming, Alaska, California, Hawaii, Oregon, Washington.

4.0 Discussion

This Data Brief is the third of three that aim to validate VA MDS data. In this Brief we have shown that quality measures derived from VA MDS data are, in most cases, similar to those derived from community MDS data. This further increases our confidence that VA MDS data have been collected properly and that the quality of the data is good. Our results show that VA nursing facilities perform better on the ADL and restraints quality measures (see Sections 4.1 and 4.5) while community nursing facilities perform better on the infections, pain, and pressure sore quality measures (see Sections 4.2, 4.3, and 4.4).

The key question in interpreting these results is: do these differences in quality measure scores really reflect differences in quality of care? The principal reason why they may not is that the quality measures are not aggressively case-mix adjusted. Differences between VA and community nursing facility residents (e.g., VA residents are mostly men; differences in age and diagnoses are unknown) may account for some of the quality measure differences.

Unfortunately, the effects of these resident characteristics cannot be measured without resident-level data from community nursing homes, data that are not available to the project team.

Even without risk adjustment, some tentative conclusions can be drawn. The ADL measure (Section 4.1) is risk-adjusted somewhat because it is longitudinal and the VA performs better on that measure. And risk-adjusted or not, use of restraints (Section 4.5) is a sign of poor quality. Again the VA outperforms community homes on that measure, although it is possible that differences in how the term “restraint” is understood by assessment nurses may explain part or all of this contrast.

Differences in measurement also may explain the higher prevalence of pain recorded in VA facilities. Because pain levels must be measured by asking the resident to rate their pain, organizations like VA that emphasize pain management are likely to record higher pain prevalence than organizations that have not adopted such programs.

Finally, it should be noted that CMS has adopted new, better-adjusted measures for CY2004 but the data were not available for download during our study. In the new quality measures, pressure sore scores are adjusted by grouping residents into high- and low-risk groups. High-risk residents are those with impairment in bed mobility or transferring, comatose, or suffer from malnutrition. CMS has also added some new quality measures for CY2004, which include percent of residents who spend most of their time in bed or a chair, percent of residents whose ability to move around their room declined, and percent of residents who have become more depressed or anxious. Future work that compares these new quality measures between VA and community settings would provide additional important insight into their relative quality.

Appendix: CMS's Quality Measure Definitions

Chronic QM Definitions Effective June 30, 2002 (v1.1)		
Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
PHYSICAL FUNCTIONING		
Percent of residents with loss of ability in basic daily tasks (ADL01, CHSRA)	<p>Numerator: Residents with worsening (increasing item score) in Late-Loss ADL self-performance at target relative to prior assessment.</p> <p>Residents meet the definition of Late-Loss ADL worsening when at least two of the following are true:</p> <ol style="list-style-type: none"> 1. $G1a(A)[t]-G1a(A)[t-1] > 0$, or 2. $G1b(A)[t]-G1b(A)[t-1] > 0$, or 3. $G1h(A)[t]-G1h(A)[t-1] > 0$, or 4. $G1i(A)[t]-G1i(A)[t-1] > 0$, <p>OR at least one of the following is true:</p> <ol style="list-style-type: none"> 1. $G1a(A)[t]-G1a(A)[t-1] > 1$, or 2. $G1b(A)[t]-G1b(A)[t-1] > 1$, or 3. $G1h(A)[t]-G1h(A)[t-1] > 1$, or 4. $G1i(A)[t]-G1i(A)[t-1] > 1$. <p>Note: Late-Loss ADL items values of 8 are recoded to 4 for evaluation of change.</p> <p>Denominator: All residents with a valid target and a valid prior assessment.</p> <p>Exclusions: Residents meeting any of the following conditions:</p> <ol style="list-style-type: none"> 1. None of the four Late-Loss ADLs ($G1a(A)$, $G1b(A)$, $G1h(A)$, and $G1i(A)$) can show decline because each of the four have a value of 4 (total dependence) or a value 8 (activity did not occur) on the prior assessment [t-1]. 2. The QM did not trigger (resident not included in the numerator) AND there is missing data on any one of the four Late-Loss ADLs ($G1a(A)$, $G1b(A)$, $G1h(A)$, or $G1i(A)$) on the target assessment [t] or prior assessment [t-1]. 3. The resident is comatose ($B1 = 1$) or comatose status is unknown ($B1 = \text{missing}$) on the target assessment. 	

Chronic QM Definitions Effective June 30, 2002 (v1.1)		
Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
PHYSICAL FUNCTIONING	<ol style="list-style-type: none"> 4. The resident has end-stage disease (J5c = checked) or end-stage disease status is unknown (J5c = missing) on the target assessment. 5. The resident is receiving hospice care (P1ao = checked) or hospice status is unknown (P1ao = missing) on the target assessment or the most recent full assessment. 6. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. 	
	<p>Technical Comments:</p> <ol style="list-style-type: none"> 1. Exclusion condition 2: Missing values for G1aA, G1bA, G1hA and G1iA are any values other than 0, 1, 2, 3, 4, and 8. 2. Exclusion conditions 3 and 4: Missing values for B1and J5c are any values other than 0 and 1. 3. Exclusion condition 5: Missing values for the P1ao item chosen from the target assessment or most recent full assessment (see Technical Comment #4 below) are any values other than 0 and 1. 4. Exclusion condition 5: Use of target assessment versus most recent full assessment. <ol style="list-style-type: none"> 4.1. If the target assessment is a full assessment (AA8a = 01,02,03, or 04), then the P1ao value from the target assessment will be used for the exclusion test. 4.2. If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the P1ao value on that assessment is not out-of-range (* or null), then it is assumed that the item is active on that quarterly and the value from the target assessment will be used for the exclusion test. P1ao will be present (active) on the quarterly assessment in some states. 4.3. If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the P1ao value on that assessment is out-of-range (* or null), then it is assumed that the item is not active on that quarterly. 	

Chronic QM Definitions Effective June 30, 2002 (v1.1)		
Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
PHYSICAL FUNCTIONING		
	<p>In this case, the value from the most recent full assessment (AA8a = 01, 02, 03, or 04) for the resident will be used for the Plao exclusion test, but only if the most recent full assessment is in the 395 day period (approximately 13 months) preceding the target assessment reference date (A3a).</p> <p>5. The QM score will be set to missing if the case is excluded.</p>	

Chronic QM Definitions Effective June 30, 2002 (v1.1)		
Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY		
Percent of residents with infections (INF0X, MEGAQI)	<p>Numerator: Residents with any of the following infections or health conditions noted on the target or most recent full assessment (only if the most recent full assessment is a non-admission assessment with AA8a = 02, 03, or 04):</p> <ol style="list-style-type: none"> 1. Pneumonia (I2e=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 2. Respiratory infection (I2f=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 3. Septicemia (I2g=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 4. Urinary tract infection (I2j=checked) on the target assessment only, 5. Viral hepatitis (I2k=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 6. Wound infection (I2l=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 7. Fever (J1h=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment), 8. Recurrent lung aspiration (J1k=checked) on the target assessment or most recent full assessment (if the most recent full is a non-admission assessment). <p>Denominator: All residents with a valid target assessment.</p> <p>Exclusions: Residents satisfying any of the following conditions:</p> <ol style="list-style-type: none"> 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM did not trigger (resident is not included in the QM numerator) AND the urinary tract infection item (I2j) is 	

Chronic QM Definitions Effective June 30, 2002 (v1.1)		
Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY	<p>missing on the target assessment.</p> <ol style="list-style-type: none"> The QM did not trigger and the value of any of the other infections or health conditions (I2e, I2f, I2g, I2k, I2l, J1h, or J1k) selected from the target assessments or most recent full assessment is missing. The resident has end-stage disease (J5c = checked) or status is unknown (J5c = missing) on the target assessment. The resident is receiving hospice care (P1ao = checked) or hospice status is unknown (P1ao = missing) on the target assessment or the most recent full assessment. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. 	
	<p>Technical Comments:</p> <ol style="list-style-type: none"> Numerator inclusion: Use of target assessment versus most recent full assessment for items I2e, I2f, I2g, I2k, I2l, J1h, and J1k. <ol style="list-style-type: none"> If the target assessment is a full non-admission assessment (AA8a = 02,03, or 04), then the I2e, I2f, I2g, I2k, I2l, J1h, and J1k values from the target assessment will be used. If the target assessment is an admission assessment (AA8a = 01), then the resident will be excluded (Exclusion condition #1). If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the value for one of these items (I2e, I2f, I2g, I2k, I2l, J1h, or J1k) on that assessment is not out-of-range (* or null), then it is assumed that the item is active on that quarterly and the value for that item from the target assessment will be used. I2e, I2f, I2g, I2k, I2l, J1h, and J1k will be present (active) on the quarterly assessment in some states. If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the value for one of these 	

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CLINICAL COMPLEXITY	<p>items (I2e, I2f, I2g, I2k, I2l, J1h, and J1k) on that assessment is out-of-range (* or null), then it is assumed that the item is not active on that quarterly. When one of these items is inactive on the quarterly, then the most recent full assessment for the resident will be considered for that item as follows:</p> <p>1.3.1. If the most recent full is an annual (AA8a = 02), significant change (AA8a = 03), or significant correction of prior full (AA8a = 04) AND this most recent full has a reference date (A3a) in the 395 day period (approximately 13 months) preceding the target assessment reference date, then the value of the item from this most recent full assessment will be used.</p> <p>1.3.2. If the most recent full is an admission (AA8a = 01), then the value of the item from this most recent full will NOT be used. The value for the item will remain out-of-range (*, null) and this will be treated as a missing value (see technical comment #2 below).</p> <p>2. Exclusion Conditions 2 and 3. Missing values for I2e, I2f, I2g, I2j, I2k, I2l, J1h, and J1k are any values other than 0 and 1.</p> <p>3. Exclusion condition 4. Missing values on J5c are any values other than 0 and 1.</p> <p>4. Exclusion condition 5. Missing values for the Plao item chosen from the target assessment or most recent full assessment (see Technical Comment #5 below) are any values other than 0 and 1.</p> <p>5. Exclusion condition 5: Use of target assessment versus most recent full assessment for the resident.</p> <p>5.1. If the target assessment is a full assessment (AA8a = 01, 02, 03, or 04), then the Plao value from the target assessment will be used for the exclusion test.</p> <p>5.2. If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the Plao value on that assessment is not out-of-range (* or null), then it is</p>	

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CLINICAL COMPLEXITY	<p>assumed that the item is active on that quarterly and the value from the target assessment will be used for the exclusion test. Plao will be present (active) on the quarterly assessment in some states.</p> <p>5.3. If the target assessment is a quarterly assessment (AA8a = 05 or 10) and the Plao value on that assessment is out-of-range (" or null), then it is assumed that the item is not active on that quarterly. In this case, the value from the most recent full assessment (AA8a = 01,02,03, or 04) for the resident will be used for the exclusion test, but only if the most recent full assessment is in the 395 day period (approximately 13 months) preceding the target assessment reference date (A3a).</p> <p>6. The QM score will be set to missing if the case is excluded.</p>	

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Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY		
Percent of residents with pain (PAIOX, MEGAQI)	<p>Numerator: Residents with moderate pain at least daily (J2a=2 AND J2b=2) OR horrible/excruciating pain at any frequency (J2b=3) on the target assessment.</p> <p>Denominator: All residents with a valid target assessment.</p> <p>Exclusions: Residents satisfying any of the following conditions:</p> <ol style="list-style-type: none"> 1. The target assessment is an admission (AA8a = 01) assessment. 2. Either J2a or J2b is missing on the target assessment. 3. The values of J2a and J2b are inconsistent on the target assessment. 4. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. 	<p>Covariates:</p> <ol style="list-style-type: none"> 1. Indicator of independence or modified independence in daily decision making on the prior assessment: Covariate = 1 if B4 = 0 or 1. Covariate = 0 if B4 = 2 or 3.
	<p>Technical Comments:</p> <ol style="list-style-type: none"> 1. Exclusion Condition 2: Missing values for J2a are any values other than 0 through 2; missing values for J2b are any values other than 1, 2, 3, and blank. 2. Exclusion Condition 3: The values of J2a and J2b are inconsistent in the following 2 cases: 2.1. J2a is 0 and J2b is a value of 1 through 3. 2.2. J2a > 0 and J2b is a value other than 1 through 3. 3. The QM score will be set to missing if the case is excluded. 4. The QM score will be set to missing if the covariate has a missing value. 	<p>Technical Comments:</p> <ol style="list-style-type: none"> 1. A predicted QM score is calculated for the resident based on a logistic regression model using the covariate. The predicted score will be set to missing if the QM score is missing OR the covariate has a missing value. 1.1. The covariate will have a missing value if the covariate is NOT = 1 or 0 according to the conditions above. 1.1.1. Covariate 1 has a missing value if B4 is missing on the prior assessment. Missing values on B4 are any values other than 0 through 3.

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Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY		
Percent of residents with pressure sores (PRU01, CHSRA)	Numerator: Residents with pressure ulcers (Stage 1-4) on target assessment (M2a >0 OR I3a-e = 707.0) Denominator: All residents with a valid target assessment. Exclusions: <ol style="list-style-type: none"> 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM did not trigger (resident is not included in the QM numerator) AND the value of M2a is missing on the target assessment. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. 	
	Technical Comments: <ol style="list-style-type: none"> 1. Exclusion condition 2: Missing values on M2a are any values other than 0 through 4. 2. The QM score will be set to missing if the case is excluded. 	

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Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY		
Percent of residents with pressure sores (FAP-adjusted) (PRU01, CHSRA)	<p>Numerator: Residents with pressure ulcers (Stage 1-4) on target assessment (M2a >0 OR I3a-e = 707.0)</p> <p>Denominator: All residents with a valid target assessment.</p> <p>Exclusions:</p> <ol style="list-style-type: none"> 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM did not trigger (resident is not included in the QM numerator) AND the value of M2a is missing on the target assessment. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. <p>Technical Comments:</p> <ol style="list-style-type: none"> 1. Exclusion condition 2: Missing values on M2a are any values other than 0 through 4. 2. The QM score will be set to missing if the case is excluded. 	<p>Facility admission profile FAP_PRU01: prevalence of stage1-4 pressure ulcers (M2a >0 OR I3a-e = 707.0) among non-PPS admissions (AA8a = 01 and AA8b = 6 or blank) occurring over previous 12 months.</p> <p>Numerator: Non-PPS admission assessments (AA8a = 01 and AA8b = 6 or blank) with M2a > 0 OR I3a-e = 707.0.</p> <p>Denominator: All non-PPS admission assessments (AA8a = 01 and AA8b = 6 or blank).</p> <p>Exclusions: Non-PPS admission assessments (AA8a = 01 and AA8b = 6 or blank) that do not satisfy the numerator condition AND that have missing data on M2a.</p> <p>Technical Comments:</p> <ol style="list-style-type: none"> 1. Admission assessments that do not meet the numerator qualification and have a missing value on M2a are excluded from FAP_PRU01. Missing values on M2a are any values other than 0 through 4. 2. A predicted QM score is calculated for the resident based on a logistic regression model using FAP_PRU01. The predicted score will be set to missing if the QM score is missing OR FAP_PRU01 is missing (facility-wide denominator = 0).

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Indicator	Numerator & Denominator Definition(s), Exclusions and Technical Comments	Covariate(s)
CLINICAL COMPLEXITY		
Percent of residents in physical restraints (RES01, CHSRA)	<p>Numerator: Residents who were physically restrained daily (P4c or P4d or P4e = 2) on target assessment.</p> <p>Denominator: All residents with a valid target assessment.</p> <p>Exclusions: Residents satisfying the following condition:</p> <ol style="list-style-type: none"> 1. The target assessment is an admission (AA8a = 01) assessment. 2. The QM is not triggered (numerator condition not satisfied) AND P4c, P4d, or P4e has a missing value. 3. The resident is in a facility with a Chronic Care Admission Sample size of 0. The Chronic Care Admission Sample is 0 if there are no residents with a non-PPS admission assessment (AA8a=01 and AA8b=blank or 6) over previous 12 months. <p>Technical Comments:</p> <ol style="list-style-type: none"> 1. Exclusion Condition 2. Missing values for P4c, P4d, and P4e are any values other than 0 through 2. 2. The QM score will be set to missing if the case is excluded. 	

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